

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	Time Stamp
L1	2	(interpolat\$3 AND mesh AND color AND horizontal AND vertical).CLM.	US-PGPUB	OR	OFF	2005/08/19 12:32

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	Time Stamp
L48	6	L46 and (color same (horizontal and vertical))	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	ON	2005/08/19 11:36
L47	96	L45 and (boundar\$3 or "bounding box" or "bounding area" or "rectangular area" or "rectangular box")	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	ON	2005/08/19 11:36
L46	74	L44 and (interpolat\$3 same (boundar\$3 or "bounding box" or "bounding area" or "rectangular area" or "rectangular box"))	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	ON	2005/08/19 11:36
L31	15	L30 and (color same (horizontal and vertical))	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	ON	2005/08/19 11:36
L30	157	(L28) and (boundar\$3 or "bounding box" or "bounding area" or "rectangular area" or "rectangular box")	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	ON	2005/08/19 11:36
L25	74	(L22 or L23) and (interpolat\$3 same (boundar\$3 or "bounding box" or "bounding area" or "rectangular area" or "rectangular box"))	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	ON	2005/08/19 11:36
L45	225	358/525.ccls.	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	OFF	2005/08/19 11:27
L44	1674	358/518.ccls.	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	OFF	2005/08/19 11:27
L29	30	(L26 or L27) and (interpolat\$3 same (boundar\$3 or "bounding box" or "bounding area" or "rectangular area" or "rectangular box"))	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	ON	2005/08/19 10:34

L28	470	382/300.ccls.	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	ON	2005/08/19 10:33
L27	60	382/267.ccls.	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	ON	2005/08/19 10:33
L26	770	382/260.ccls.	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	ON	2005/08/19 10:33
L23	1040	382/167.ccls.	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	ON	2005/08/19 10:31
L22	1060	382/162.ccls.	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	ON	2005/08/19 10:30
L19	80	345/606.ccls. and (boundar\$3 or "bounding box" or "bounding area" or "rectangular area" or "rectangular box")	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	ON	2005/08/19 10:30
L21	5	345/609.ccls. and (boundar\$3 or "bounding box" or "bounding area" or "rectangular area" or "rectangular box")	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	ON	2005/08/19 09:13
L20	17	345/609.ccls.	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	ON	2005/08/19 09:11
L12	182	345/606.ccls.	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	ON	2005/08/19 08:54
L11	24	L6 and (boundar\$3 or "bounding box" or "bounding area" or "rectangular area" or "rectangular box")	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	ON	2005/08/19 08:53

S57	18	345/606.ccls. and mesh and (rectangle or square)	US-PGPUB; USPAT; DERWENT	OR	OFF	2005/08/19 08:52
S56	5	345/606.ccls. and mesh and (bound\$3 near7 (rectangle or square))	US-PGPUB; USPAT; DERWENT	OR	OFF	2005/08/19 08:52
L18	80	345/606.ccls. and (boundar\$3 or "bounding box" or "bounding area" or "rectangular box")	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	ON	2005/08/19 08:52
L16	5	345/606.ccls. and mesh and (bound\$3 near7 (rectangle or square))	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	OFF	2005/08/19 08:52
L15	18	345/606.ccls. and mesh and (rectangle or square)	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	OFF	2005/08/19 08:52
L7	20	L6 and (boundar\$3 or "bounding box" or "bounding area")	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	ON	2005/08/19 08:26
S82	59	(S80 or S81) and interpolat\$3	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	ON	2005/08/19 08:25
L6	59	(L4 or L5) and interpolat\$3	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	ON	2005/08/19 08:25
L5	118	345/597.ccls.	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	ON	2005/08/19 08:25
L4	154	345/596.ccls.	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	ON	2005/08/19 08:25
S81	118	345/597.ccls.	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	ON	2005/08/18 16:13

S80	154	345/596.ccls.	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	ON	2005/08/18 16:13
S79	118	345/597.ccls.	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	ON	2005/08/18 16:13
S78	154	345/596.ccls.	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	ON	2005/08/18 16:13
S42	52	(S40 or S41) and interpolat\$3	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	ON	2005/08/18 16:13
S35	103	345/597.ccls.	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	ON	2005/08/18 16:13
S34	137	345/596.ccls.	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	ON	2005/08/18 16:12
S77	19	345/581.ccls. and (interpolat\$3 near7 (boundar\$3 or "bounding box" or "bounding area" or mesh))	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	ON	2005/08/18 15:42
S76	17	345/589.ccls. and (interpolat\$3 near7 (boundar\$3 or "bounding box" or "bounding area" or mesh))	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	ON	2005/08/18 15:31
S75	10	345/589.ccls. and (differential near5 analyz\$5) and (endpoint or vertices or vertex or point)	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	ON	2005/08/18 15:27
S74	20	345/581.ccls. and (differential near5 analyz\$5) and (endpoint or vertices or vertex or point)	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	ON	2005/08/18 15:19

S26	15	345/581.ccls. and (differential near5 analyz\$5) and (endpoint or vertices or vertex or point)	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	ON	2005/08/18 15:19
S25	8	345/589.ccls. and (differential near5 analyz\$5) and (endpoint or vertices or vertex or point)	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	ON	2005/08/18 15:19
S73	1071	345/589.ccls.	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	ON	2005/08/18 15:18
S72	561	345/581.ccls.	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	ON	2005/08/18 15:18
S71	25	shiraishi-naoto.in.	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	ON	2005/08/18 15:18
S24	972	345/589.ccls.	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	ON	2005/08/18 15:18
S23	499	345/581.ccls.	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	ON	2005/08/18 15:18
S21	22	shiraishi-naoto.in.	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	ON	2005/08/18 15:17
S68	6	345/606.ccls. and mesh and (bound\$3 near7 (box))	US-PGPUB; USPAT; DERWENT	OR	OFF	2005/03/08 11:01
S69	2	382/300.ccls. and mesh and (bound\$3 near7 (box))	US-PGPUB; USPAT; DERWENT	OR	OFF	2005/03/08 11:00
S67	4	interpolat\$3 near5 based near5 (bound\$3 near3 (box or rectangle or square))	US-PGPUB; USPAT; DERWENT	OR	OFF	2005/03/08 11:00

S58	2	382/300.ccls. and mesh and (bound\$3 near7 (rectangle or square))	US-PGPUB; USPAT; DERWENT	OR	OFF	2005/03/08 11:00
S65	12	345/622.ccls. and (interpolat\$3 and color)	US-PGPUB; USPAT; DERWENT	OR	OFF	2005/03/08 10:59
S66	42	S63 and ("345"/\$.ccls. or "382"/\$.ccls. or "348"/\$.ccls. or 358/&.ccls.)	US-PGPUB; USPAT; DERWENT	OR	OFF	2005/03/08 10:45
S63	90	S62 and interpolat\$3	US-PGPUB; USPAT; DERWENT	OR	OFF	2005/03/08 10:45
S64	60	345/622.ccls.	US-PGPUB; USPAT; DERWENT	OR	OFF	2005/03/08 10:38
S62	201	((bound\$3 near7 (rectangle or square)) and (color near3 (lengths or divisions or tiles or regions)))	US-PGPUB; USPAT; DERWENT	OR	OFF	2005/03/08 10:37
S61	0	345/606.ccls. and ((bound\$3 near7 (rectangle or square)) and (color near3 (lengths or divisions or tiles or regions)))	US-PGPUB; USPAT; DERWENT	OR	OFF	2005/03/08 10:37
S60	0	382/300.ccls. and ((bound\$3 near7 (rectangle or square)) and (color near3 (lengths or divisions or tiles or regions)))	US-PGPUB; USPAT; DERWENT	OR	OFF	2005/03/08 10:37
S59	14	382/300.ccls. and mesh and (rectangle or square)	US-PGPUB; USPAT; DERWENT	OR	OFF	2005/03/08 10:35
S54	74	345/596.ccls. and (conver\$4 and (halfton\$3 or dither\$3))	US-PGPUB; USPAT; DERWENT	OR	OFF	2005/03/08 10:29
S55	3	S52 and (conver\$4 and (halfton\$3 or dither\$3))	US-PGPUB; USPAT; DERWENT	OR	OFF	2005/03/08 08:33
S52	17	(US-4532602-\$ or US-5502802-\$ or US-5742796-\$ or US-5757376-\$ or US-5903276-\$ or US-5977984-\$ or US-6008815-\$ or US-6014125-\$ or US-6088037-\$ or US-6211885-\$ or US-6335734-\$ or US-6433790-\$ or US-6473091-\$ or US-6587117-\$ or US-6756993-\$ or US-6784894-\$ or US-6847361-\$).did.	USPAT	OR	OFF	2005/03/08 08:30
S51	13	S50 and plane	US-PGPUB; USPAT; DERWENT	OR	OFF	2005/03/07 13:22

S50	17	(US-5502802-\$ or US-5742796-\$ or US-5757376-\$ or US-5903276-\$ or US-5977984-\$ or US-6014125-\$ or US-6088037-\$ or US-6211885-\$ or US-6335734-\$ or US-6473091-\$ or US-6756993-\$ or US-6784894-\$ or US-6847361-\$ or US-6587117-\$ or US-6433790-\$ or US-6008815-\$ or US-4532602-\$).did.	USPAT	OR	OFF	2005/03/07 13:22
S49	35	(S44 or S45 or S46 or S48) and (endpoint and color and interpolat\$3)	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	ON	2005/03/07 09:32
S47	57	382/267.ccls.	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	ON	2005/03/07 09:29
S48	430	382/300.ccls.	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	ON	2005/03/07 09:14
S46	715	382/260.ccls.	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	ON	2005/03/07 09:14
S45	927	382/167.ccls.	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	ON	2005/03/07 09:14
S44	954	382/162.ccls.	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	ON	2005/03/07 09:14
S43	11	(345/600.ccls. or 345/604.ccls.) and (interpolat\$3 and endpoint)	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	ON	2005/03/07 09:14
S41	103	345/597.ccls.	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	ON	2005/03/07 09:06

S40	137	345/596.ccls.	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	ON	2005/03/07 09:06
S38	7	345/608.ccls.	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	ON	2005/03/07 09:03
S39	22	345/610.ccls.	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	ON	2005/03/07 09:02
S36	167	345/606.ccls.	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	ON	2005/03/07 08:22
S37	15	345/609.ccls.	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	ON	2005/03/04 16:13
S33	41	345/589.ccls. and (interpolat\$3) and (endpoint or vertices or vertex or point) and ((drawing or graphic) near5 (command or instruction))	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	ON	2005/03/04 16:13
S32	28	345/589.ccls. and (interpolat\$3) and (endpoint or vertices or vertex or point) and gradation	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	ON	2005/03/04 15:55
S30	229	345/589.ccls. and (interpolat\$3) and (endpoint or vertices or vertex or point)	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	ON	2005/03/04 15:54
S31	12	345/581.ccls. and (interpolat\$3) and (endpoint or vertices or vertex or point) and color and gradation	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	ON	2005/03/04 15:49
S29	140	345/581.ccls. and (interpolat\$3) and (endpoint or vertices or vertex or point) and color	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	ON	2005/03/04 15:48

S27	14	345/581.ccls. and (differential near5 analyz\$5) and (endpoint or vertices or vertex or point) and color	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	ON	2005/03/04 15:43
S28	3	"6724393"	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	ON	2005/03/04 14:56
S22	2	"6014125".pn.	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	ON	2005/03/04 14:23
S17	2	"5859650".pn.	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	ON	2005/03/04 14:08
S16	2	"5341468".pn.	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	ON	2005/03/04 13:02
S15	2	"5396585".pn.	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	ON	2005/03/04 13:02
S14	2	"5465371".pn.	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	ON	2005/03/04 13:01
S13	2	"5337168".pn.	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	ON	2005/03/04 12:42
S12	2	"5459822".pn.	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	ON	2005/03/04 12:42
S11	2	"5739826".pn.	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	ON	2005/03/04 12:41

S10	2	"5455900".pn.	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	ON	2005/03/04 12:41
S9	2	"5551019".pn.	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	ON	2005/03/04 12:40
S8	2	"5448690".pn.	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	ON	2005/03/04 12:40
S20	13	"6081274"	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	ON	2005/03/04 12:39
S7	2	"5732204".pn.	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	ON	2005/03/04 12:39
S6	2	"6172678".pn.	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	ON	2005/03/04 12:37
S19	2	"5903276".pn.	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	ON	2005/03/04 12:36
S5	2	"5828378".pn.	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	ON	2005/03/04 12:36
S3	2	"20030053701"	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	ON	2005/03/04 11:50
S1	2	"20030063813"	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	ON	2005/03/04 11:48

RESULT LIST

0 results found in the Worldwide database for:

(interpolating AND color AND bounding) in the title or abstract

(Results are sorted by date of upload in database)

Data supplied from the *esp@cenet* database - Worldwide

17 results found in the Worldwide database for:
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 (Results are sorted by date of upload in database)

- Data supplied from the **esp@cenet** database - Worldwide

RESULT LIST

4 results found in the Worldwide database for:

(interpolating AND color AND mesh) in the title or abstract

(Results are sorted by date of upload in database)

1 PROGRAM, METHOD AND APPARATUS FOR PROCESSING IMAGE

Inventor: SHIRAISHI NAOHITO

Applicant: RICOH KK

EC:

IPC: G06T11/40; B41J2/525; (+5)

Publication info: **JP2004227518** - 2004-08-12

2 Image interpolating method and apparatus

Inventor: AKIYOSHI KOZO (JP); AKIYOSHI NOBUO (JP) Applicant:

EC: G06T3/00A

IPC: H04B1/66

Publication info: **US2002118751** - 2002-08-29

3 METHOD FOR PREPARING GREEN COVERAGE RATIO MAP OR GREEN VIEW MAP

Inventor: SHIMAMOTO KOHEI; SAITO MASATO; (+1) Applicant: ASIA AIR SURVEY CO LTD

EC:

IPC: G09B29/00

Publication info: **JP2001142393** - 2001-05-25

4 Method and system for determining and/or using illumination maps in rendering images

Inventor: LAFERRIERE ALAIN M (CA)

Applicant: MICROSOFT CORP (US)

EC: G06T15/50

IPC: G06T15/50

Publication info: **EP0856815** - 1998-08-05

.....
Data supplied from the **esp@cenet** database - Worldwide

RESULT LIST

4 results found in the Worldwide database for:

(interpolation AND color AND mesh) in the title or abstract

(Results are sorted by date of upload in database)

1 Image interpolating method and apparatus

Inventor: AKIYOSHI KOZO (JP); AKIYOSHI NOBUO (JP) **Applicant:**

EC: G06T3/00A

IPC: H04B1/66

Publication info: **US2002118751** - 2002-08-29

2 SYSTEM AND METHOD FOR COMPUTER MODELING OF 3D OBJECTS AND 2D IMAGES BY MESH CONSTRUCTIONS THAT INCORPORATE NON-SPATIAL DATA SUCH AS COLOR OR TEXTURE

Inventor: MIGDAL ALEXANDER A; AGUERA-ARCAS

Applicant: REAL TIME GEOMETRY CORP (US)

BLAISE; (+1)

EC: G06T17/20

IPC: G06F15/00

Publication info: **WO9859300** - 1998-12-30

3 THREE-DIMENSIONAL TOPOGRAPHY OUTPUT METHOD AND DEVICE AND RECORDING MEDIUM

Inventor: MURATA SHINICHI

Applicant: OKI ELECTRIC IND CO LTD

EC:

IPC: G06T1/00; G06T17/00; (+1)

Publication info: **JP10091760** - 1998-04-10

4 PARAMETRIC CURVED SURFACE DISPLAY DEVICE BY GLOW SHADING

Inventor: KOMAZAKI HIROSHI; MIMA TOSHIYA

Applicant: FUJITSU LTD

EC:

IPC: G06F15/72

Publication info: **JP4155592** - 1992-05-28

Data supplied from the **esp@cenet** database - Worldwide

RESULT LIST

Approximately 45 results found in the Worldwide database for:
(**interpolation AND color AND boundary**) in the title or abstract
(Results are sorted by date of upload in database)

1 Creation of reverse look-up table

Inventor: HAIKIN JOHN S (US); NEWMAN TODD D (US) Applicant: CANON KK (JP)
EC: IPC: G03F3/08; G06K15/00; (+1)
Publication info: **US6919975** - 2005-07-19

2 Color processing apparatus and method

Inventor: MATSUOKA HIROCHIKA (JP); FUKAO SUZUKO Applicant: CANON KK (JP)
(JP)
EC: IPC: H04N1/60
Publication info: **US2005146736** - 2005-07-07

3 INTERPOLATION USING AT LEAST ONE BOUNDARY POINT IN BOUNDARY SURFACE

Inventor: GONDEK JAY S; AGAR UFUK A; (+1) Applicant: HEWLETT PACKARD DEVELOPMENT CO
EC: H04N1/60; H04N1/60D2 IPC: H04N1/46; B41J2/525; (+2)
Publication info: **JP2005006332** - 2005-01-06

4 Formatting object for modifying the visual attributes of visual objects ot reflect data values

Inventor: DAVIS RANDALL (US); COUCKUYT JEFF (US); Applicant: MICROSOFT CORP (US)
(+1)
EC: IPC: G06T11/20
Publication info: **US2005001839** - 2005-01-06

5 System and method for motion compensation of image planes in color sequential displays

Inventor: VAN DIJK ROY (NL); SHIMIZU JEFFREY A (US) Applicant: KONINKL PHILIPS ELECTRONICS NV (NL)
EC: G09G3/20; H04N7/46E; (+2) IPC: H04N7/12
Publication info: **US6831948** - 2004-12-14

6 Formatting object for modifying the visual attributes of visual objects to reflect data values

Inventor: DAVIS RANDALL (US); COUCKUYT JEFF (US); Applicant: MICROSOFT CORP (US)
(+1)
EC: IPC: G06F15/167; G06F15/00
Publication info: **US6822650** - 2004-11-23

7 COLOR GRADIENT PATH

Inventor: GANGNET MICHEL J; KALLAY MICHAEL; (+5) Applicant: MICROSOFT CORP
EC: IPC: G06T11/40; G06T1/00; (+3)
Publication info: **JP2004259270** - 2004-09-16

8 COLOR SPACE CONVERSION METHOD USING INTERPOLATION

Inventor: ZENG HUANZHAO; HUDSON KEVIN R; (+1) Applicant: HEWLETT PACKARD DEVELOPMENT CO
EC: H04N1/60D3B IPC: H04N1/46; B41J2/525; (+2)
Publication info: **JP2004229277** - 2004-08-12

9 DEVICE FOR IMPROVING REPRODUCTION QUALITY OF VIDEO AND ITS METHOD

Inventor: KIM HYE-YEON; LEE SHI-HWA; (+3) Applicant: SAMSUNG ELECTRONICS CO LTD
EC: IPC: H04N7/01
Publication info: **JP2004215266** - 2004-07-29

10 COLOR CORRECTION METHOD

Inventor: VLADISLAV TEREKHOV Applicant: SAMSUNG ELECTRONICS CO LTD
EC: IPC: H04N1/46; G06T1/00; (+1)
Publication info: **JP2004064798** - 2004-02-26

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1 Color processing apparatus and method

Inventor: MATSUOKA HIROCHIKA (JP); FUKAO SUZUKO Applicant: CANON KK (JP)
(JP)

EC: IPC: H04N1/60

Publication info: **US2005146736** - 2005-07-07

2 COLOR SPACE CONVERSION METHOD USING INTERPOLATION

Inventor: ZENG HUANZHAO; HUDSON KEVIN R; (+1) Applicant: HEWLETT PACKARD DEVELOPMENT CO

EC: H04N1/60D3B IPC: H04N1/46; B41J2/525; (+2)

Publication info: **JP2004229277** - 2004-08-12

3 IMAGE PROCESSOR

Inventor: TSURUOKA TAKEO Applicant: OLYMPUS OPTICAL CO

EC: IPC: H04N1/387; G06T3/00; (+2)

Publication info: **JP2002223350** - 2002-08-09

4 DATA PREPARATION METHOD, SIGNAL CONVERSION METHOD AND IMAGE PROCESSOR

Inventor: YAMAGUCHI YOSHIHIRO Applicant: FUJI PHOTO FILM CO LTD

EC: IPC: H04N1/60; G06T1/00; (+1)

Publication info: **JP2000244755** - 2000-09-08

5 IMAGE PROCESSOR

Inventor: MIZUNO TOORU Applicant: RICOH KK

EC: IPC: H04N1/60; H04N1/46

Publication info: **JP9154028** - 1997-06-10

6 IMAGE PROCESSOR

Inventor: SAKAGAMI HIROFUMI Applicant: RICOH KK

EC: IPC: H04N1/393; G06T11/80; (+1)

Publication info: **JP9154011** - 1997-06-10

7 COLOR IMAGE FORMING DEVICE

Inventor: YAMAKAWA SHINJI Applicant: RICOH KK

EC: IPC: H04N1/40; B41J2/525; (+4)

Publication info: **JP9130598** - 1997-05-16

8 METHOD AND APPARATUS FOR MAPPING BETWEEN COLOR SPACES

Inventor: SHIJII JIEI WAN; RODONII ERU MIRAA; (+1) Applicant: EASTMAN KODAK CO

EC: H04N1/60G IPC: G09G5/06; G06T1/00; (+2)

Publication info: **JP7020841** - 1995-01-24

9 VIDEO REPRODUCING DEVICE

Inventor: MATSUMOTO KIMIO; NISHIGAKI ATSURO; (+1) Applicant: SANYO ELECTRIC CO

EC: IPC: G06F15/66; H04N9/80

Publication info: **JP5153618** - 1993-06-18

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### 1 Color space conversion using interpolation

**Inventor:** ZENG HUANZHAO (US); HUDSON KEVIN R (US); (+1)

**Applicant:** HEWLETT PACKARD DEVELOPMENT CO (US)

**EC:** H04N1/60D3B

**IPC:** H04N1/60

**Publication info:** **EP1441503** - 2004-07-28

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| 3.  | <u>2002 - 223350</u>     | IMAGE PROCESSOR                                                                      |
| 4.  | <u>2002 - 042155</u>     | GAME SYSTEM AND INFORMATION STORAGE MEDIUM                                           |
| 5.  | <u>2001 - 298630</u>     | COLOR IMAGE PROCESSING METHOD AND COLOR IMAGE PROCESSOR                              |
| 6.  | <u>2000 - 244755</u>     | DATA PREPARATION METHOD, SIGNAL CONVERSION METHOD AND IMAGE PROCESSOR                |
| 7.  | <u>09 - 154028(1997)</u> | IMAGE PROCESSOR                                                                      |
| 8.  | <u>09 - 154011(1997)</u> | IMAGE PROCESSOR                                                                      |
| 9.  | <u>09 - 130598(1997)</u> | COLOR IMAGE FORMING DEVICE                                                           |
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M. R. Stytz, G. Frieder, O. Frieder

December 1991 **ACM Computing Surveys (CSUR)**, Volume 23 Issue 4

Full text available: [pdf\(7.38 MB\)](#)

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**Keywords:** Computer graphics, medical imaging, surface rendering, three-dimensional imaging, volume rendering

2 [Status report of the graphic standards planning committee](#)

Computer Graphics staff

August 1979 **ACM SIGGRAPH Computer Graphics**, Volume 13 Issue 3

Full text available: [pdf\(15.01 MB\)](#)

Additional Information: [full citation](#), [references](#), [citations](#)



3 [Three-dimensional object recognition](#)

Paul J. Besl, Ramesh C. Jain

March 1985 **ACM Computing Surveys (CSUR)**, Volume 17 Issue 1

Full text available: [pdf\(7.76 MB\)](#)

Additional Information: [full citation](#), [abstract](#), [references](#), [citations](#), [index terms](#), [review](#)



A general-purpose computer vision system must be capable of recognizing three-dimensional (3-D) objects. This paper proposes a precise definition of the 3-D object recognition problem, discusses basic concepts associated with this problem, and reviews the relevant literature. Because range images (or depth maps) are often used as sensor input instead of intensity images, techniques for obtaining, processing, and characterizing range data are also surveyed.

4 [The Quadtree and Related Hierarchical Data Structures](#)

Hanan Samet

June 1984 **ACM Computing Surveys (CSUR)**, Volume 16 Issue 2

Full text available: [pdf\(4.87 MB\)](#)

Additional Information: [full citation](#), [references](#), [citations](#), [index terms](#)



5 [Combining edges and points for interactive high-quality rendering](#)

Kavita Bala, Bruce Walter, Donald P. Greenberg

July 2003 **ACM Transactions on Graphics (TOG)**, Volume 22 Issue 3

Full text available: [pdf\(4.52 MB\)](#)

Additional Information: [full citation](#), [abstract](#), [references](#), [index terms](#)



This paper presents a new interactive rendering and display technique for complex scenes with expensive shading, such as global illumination. Our approach combines sparsely sampled shading (points) and analytically computed discontinuities (edges) to interactively generate high-quality images. The *edge-and-point* image is a new compact representation that combines edges and points such that fast, table-driven interpolation of pixel shading from nearby point samples is possible, while respo ...

**Keywords:** interactive software rendering, silhouette and shadow edges, sparse sampling and reconstruction

## 6 Computational Approaches to Image Understanding

Michael Brady

January 1982 **ACM Computing Surveys (CSUR)**, Volume 14 Issue 1


Full text available:  [pdf\(10.04 MB\)](#) Additional Information: [full citation](#), [references](#), [citations](#), [index terms](#)



## 7 A survey of methods for recovering quadrics in triangle meshes

Sylvain Petitjean

June 2002 **ACM Computing Surveys (CSUR)**, Volume 34 Issue 2

Full text available:  [pdf\(3.91 MB\)](#) Additional Information: [full citation](#), [abstract](#), [references](#), [citations](#), [index terms](#)

In a variety of practical situations such as reverse engineering of boundary representation from depth maps of scanned objects, range data analysis, model-based recognition and algebraic surface design, there is a need to recover the shape of visible surfaces of a dense 3D point set. In particular, it is desirable to identify and fit simple surfaces of known type wherever these are in reasonable agreement with the data. We are interested in the class of quadric surfaces, that is, algebraic surfa ...

**Keywords:** Data fitting, geometry enhancement, local geometry estimation, mesh fairing, shape recovery



## 8 Fast object-precision shadow generation for area light sources using BSP trees

Norman Chin, Steven Feiner

June 1992 **Proceedings of the 1992 symposium on Interactive 3D graphics**

Full text available:  [pdf\(2.37 MB\)](#) Additional Information: [full citation](#), [references](#), [citations](#), [index terms](#)



## 9 Lightfield acquisition & display: DISCO: acquisition of translucent objects

Michael Goesele, Hendrik P. A. Lensch, Jochen Lang, Christian Fuchs, Hans-Peter Seidel

August 2004 **ACM Transactions on Graphics (TOG)**, Volume 23 Issue 3

Full text available:  [pdf\(526.75 KB\)](#)  [mov\(24:20 MIN\)](#) Additional Information: [full citation](#), [abstract](#), [references](#), [index terms](#)

Translucent objects are characterized by diffuse light scattering beneath the object's surface. Light enters and leaves an object at possibly distinct surface locations. This paper presents the first method to acquire this transport behavior for arbitrary inhomogeneous objects. Individual surface points are illuminated in our DISCO measurement facility and the object's impulse response is recorded with a high-dynamic range video camera. The acquired data is resampled into a hierarchical model of ...

**Keywords:** Acquisition, BSSRDF, Reflection Model, Subsurface Scattering, Translucency



## 10 Geographic Data Processing

George Nagy, Sharad Wagle

June 1979 **ACM Computing Surveys (CSUR)**, Volume 11 Issue 2






# **11 Managing uncertainty in moving objects databases**

Goce Trajcevski, Ouri Wolfson, Klaus Hinrichs, Sam Chamberlain

September 2004 **ACM Transactions on Database Systems (TODS)**, Volume 29 Issue 3

Full text available:  [pdf\(1.70 MB\)](#)

Additional Information: [full citation](#), [abstract](#), [references](#), [index terms](#)

This article addresses the problem of managing Moving Objects Databases (MODs) which capture the inherent imprecision of the information about the moving object's location at a given time. We deal systematically with the issues of constructing and representing the *trajectories* of moving objects and querying the MOD. We propose to model an uncertain trajectory as a three-dimensional (3D) cylindrical body and we introduce a set of novel but natural spatio-temporal *operators* which cap ...


**Keywords:** Moving Objects Databases



# **12 Meshed atlases for real-time procedural solid texturing**

Nathan A. Carr, John C. Hart

April 2002 **ACM Transactions on Graphics (TOG)**, Volume 21 Issue 2

Full text available:  [pdf\(5.93 MB\)](#)

Additional Information: [full citation](#), [abstract](#), [references](#), [citations](#), [index terms](#)

We describe an implementation of procedural solid texturing that uses the texture atlas, a one-to-one mapping from an object's surface into its texture space. The method uses the graphics hardware to rasterize the solid texture coordinates as colors directly into the atlas. A texturing procedure is applied per-pixel to the texture map, replacing each solid texture coordinate with its corresponding procedural solid texture result. The procedural solid texture is then mapped back onto the object s ...


**Keywords:** MIP-map, Mesh partitioning, procedural texturing, solid texturing, texture atlas, texture mapping



# **13 Voronoi diagrams—a survey of a fundamental geometric data structure**

Franz Aurenhammer

September 1991 **ACM Computing Surveys (CSUR)**, Volume 23 Issue 3

Full text available:  [pdf\(5.18 MB\)](#)

Additional Information: [full citation](#), [references](#), [citations](#), [index terms](#)


**Keywords:** cell complex, clustering, combinatorial complexity, convex hull, crystal structure, divide-and-conquer, geometric data structure, growth model, higher dimensional embedding, hyperplane arrangement, k-set, motion planning, neighbor searching, object modeling, plane-sweep, proximity, randomized insertion, spanning tree, triangulation



# **14 High quality rendering of attributed volume data**

Ulf Tiede, Thomas Schiemann, Karl Heinz Höhne

October 1998 **Proceedings of the conference on Visualization '98**

Full text available:  [pdf\(2.17 MB\)](#)  [Publisher Site](#)


Additional Information: [full citation](#), [references](#), [citations](#), [index terms](#)

**Keywords:** partial-volume-effect, ray-casting, tomographic data, visible-human-project



# **15 Computational strategies for object recognition**

Paul Suetens, Pascal Fua, Andrew J. Hanson

Full text available:  [pdf\(6.37 MB\)](#)

Additional Information: [full citation](#), [abstract](#), [references](#), [citations](#), [index terms](#), [review](#)

This article reviews the available methods for automated identification of objects in digital images. The techniques are classified into groups according to the nature of the computational strategy used. Four classes are proposed: (1) the simplest strategies, which work on data appropriate for feature vector classification, (2) methods that match models to symbolic data structures for situations involving reliable data and complex models, (3) approaches that fit models to the photometry and ...

**Keywords:** image understanding, model-based vision, object recognition

## 16 Controllable smoke animation with guiding objects

Lin Shi, Yizhou Yu

January 2005 **ACM Transactions on Graphics (TOG)**, Volume 24 Issue 1

Full text available:  [pdf\(246.85 KB\)](#)

Additional Information: [full citation](#), [abstract](#), [references](#), [index terms](#)


This article addresses the problem of controlling the density and dynamics of smoke (a gas phenomenon) so that the synthetic appearance of the smoke (gas) resembles a still or moving object. Both the smoke region and the target object are represented as implicit functions. As a part of the target implicit function, a shape transformation is generated between an initial smoke region and the target object. In order to match the smoke surface with the target surface, we impose carefully designed ...

**Keywords:** Constrained animation, fluid simulation, implicit functions, level sets, shape matching, shape transformations, velocity constraints

## 17 Texture mapping 3D models of real-world scenes

Frederick M. Weinhaus, Venkat Devarajan

December 1997 **ACM Computing Surveys (CSUR)**, Volume 29 Issue 4

Full text available:  [pdf\(1.98 MB\)](#)

Additional Information: [full citation](#), [abstract](#), [references](#), [index terms](#), [review](#)



Texture mapping has become a popular tool in the computer graphics industry in the last few years because it is an easy way to achieve a high degree of realism in computer-generated imagery with very little effort. Over the last decade, texture-mapping techniques have advanced to the point where it is possible to generate real-time perspective simulations of real-world areas by texture mapping every object surface with texture from photographic images of these real-world areas. The technique ...

**Keywords:** anti-aliasing, height field, homogeneous coordinates, image perspective transformation, image warping, multiresolution data, perspective projection, polygons, ray tracing, real-time scene generation, rectification, registration, texture mapping, visual simulators, voxels

## 18 A fast shadow algorithm for area light sources using backprojection

George Drettakis, Eugene Fiume

July 1994 **Proceedings of the 21st annual conference on Computer graphics and interactive techniques**

Full text available:  [pdf\(81.64 KB\)](#)  [ps\(249.98 KB\)](#)

Additional Information: [full citation](#), [abstract](#), [references](#), [citations](#), [index terms](#)

The fast identification of shadow regions due to area light sources is necessary for realistic rendering and for discontinuity meshing for global illumination. A new shadow-determination algorithm is presented that uses a data structure, called a backprojection, to represent the visible portion of a light source from any point in the scene. A complete discontinuity meshing algorithm is described for polyhedral scenes and area light sources, which includes an important class ...

**Keywords:** backprojection, discontinuity meshing, global illumination, penumbra, shadows, umbra

19 Video-based rendering: Video tooning

Jue Wang, Yingqing Xu, Heung-Yeung Shum, Michael F. Cohen

August 2004 **ACM Transactions on Graphics (TOG)**, Volume 23 Issue 3

Full text available:  [pdf\(1.12 MB\)](#)  [mov\(19:44 MIN\)](#) Additional Information: [full citation](#), [abstract](#), [references](#)

We describe a system for transforming an input video into a highly abstracted, spatio-temporally coherent cartoon animation with a range of styles. To achieve this, we treat video as a space-time volume of image data. We have developed an anisotropic kernel mean shift technique to segment the video data into contiguous volumes. These provide a simple cartoon style in themselves, but more importantly provide the capability to semi-automatically rotoscope semantically meaningful regions. In our sys ...

20 Video & image matting: Video object cut and paste

Yin Li, Jian Sun, Heung-Yeung Shum

July 2005 **ACM Transactions on Graphics (TOG)**, Volume 24 Issue 3

Full text available:  [pdf\(714.65 KB\)](#) Additional Information: [full citation](#), [abstract](#), [references](#)

In this paper, we present a system for cutting a moving object out from a video clip. The cutout object sequence can be pasted onto another video or a background image. To achieve this, we first apply a new 3D graph cut based segmentation approach on the spatial-temporal video volume. Our algorithm partitions watershed presegmentation regions into foreground and background while preserving temporal coherence. Then, the initial segmentation result is refined locally. Given two frames in the video ...

**Keywords:** graph cut, matting, tracking, video segmentation

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Computer Graphics staff

August 1979 **ACM SIGGRAPH Computer Graphics**, Volume 13 Issue 3Full text available: [pdf\(15.01 MB\)](#)Additional Information: [full citation](#), [references](#), [citations](#)

### 2 [The Quadtree and Related Hierarchical Data Structures](#)

Hanan Samet

June 1984 **ACM Computing Surveys (CSUR)**, Volume 16 Issue 2Full text available: [pdf\(4.87 MB\)](#)Additional Information: [full citation](#), [references](#), [citations](#), [index terms](#)

### 3 [Three-dimensional object recognition](#)

Paul J. Besl, Ramesh C. Jain

March 1985 **ACM Computing Surveys (CSUR)**, Volume 17 Issue 1Full text available: [pdf\(7.76 MB\)](#)Additional Information: [full citation](#), [abstract](#), [references](#), [citations](#), [index terms](#), [review](#)

A general-purpose computer vision system must be capable of recognizing three-dimensional (3-D) objects. This paper proposes a precise definition of the 3-D object recognition problem, discusses basic concepts associated with this problem, and reviews the relevant literature. Because range images (or depth maps) are often used as sensor input instead of intensity images, techniques for obtaining, processing, and characterizing range data are also surveyed.

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Frederick M. Weinhaus, Venkat Devarajan

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**Keywords:** anti-aliasing, height field, homogeneous coordinates, image perspective transformation, image warping, multiresolution data, perspective projection, polygons, ray tracing, real-time scene generation, rectification, registration, texture mapping, visual

5 Three-dimensional medical imaging: algorithms and computer systems

M. R. Stytz, G. Frieder, O. Frieder

December 1991 **ACM Computing Surveys (CSUR)**, Volume 23 Issue 4

Full text available:  [pdf\(7.38 MB\)](#)

Additional Information: [full citation](#), [references](#), [citations](#), [index terms](#), [review](#)

**Keywords:** Computer graphics, medical imaging, surface rendering, three-dimensional imaging, volume rendering



6 Computational Approaches to Image Understanding

Michael Brady

January 1982 **ACM Computing Surveys (CSUR)**, Volume 14 Issue 1

Full text available:  [pdf\(10.04 MB\)](#)


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7 Voronoi diagrams—a survey of a fundamental geometric data structure

Franz Aurenhammer

September 1991 **ACM Computing Surveys (CSUR)**, Volume 23 Issue 3

Full text available:  [pdf\(5.18 MB\)](#)

Additional Information: [full citation](#), [references](#), [citations](#), [index terms](#)



**Keywords:** cell complex, clustering, combinatorial complexity, convex hull, crystal structure, divide-and-conquer, geometric data structure, growth model, higher dimensional embedding, hyperplane arrangement, k-set, motion planning, neighbor searching, object modeling, plane-sweep, proximity, randomized insertion, spanning tree, triangulation

8 Session P9: interactive volume rendering: Interactive volume rendering using multi-dimensional transfer functions and direct manipulation widgets

Joe Kniss, Gordon Kindlmann, Charles Hansen

October 2001 **Proceedings of the conference on Visualization '01**

Full text available:  [pdf\(995.63 KB\)](#)

Additional Information: [full citation](#), [abstract](#), [references](#), [citations](#), [index terms](#)

Most direct volume renderings produced today employ one-dimensional transfer functions, which assign color and opacity to the volume based solely on the single scalar quantity which comprises the dataset. Though they have not received widespread attention, multi-dimensional transfer functions are a very effective way to extract specific material boundaries and convey subtle surface properties. However, identifying good transfer functions is difficult enough in one dimension, let alone two or thr ...


**Keywords:** direct manipulation widgets, direct volume rendering, graphics hardware, multi-dimensional transfer functions, volume visualization



9 Meshed atlases for real-time procedural solid texturing

Nathan A. Carr, John C. Hart

April 2002 **ACM Transactions on Graphics (TOG)**, Volume 21 Issue 2

Full text available:  [pdf\(5.93 MB\)](#)

Additional Information: [full citation](#), [abstract](#), [references](#), [citations](#), [index terms](#)

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coordinate with its corresponding procedural solid texture result. The procedural solid texture is then mapped back onto the object's ...

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#### 10 Managing uncertainty in moving objects databases

Goce Trajcevski, Ouri Wolfson, Klaus Hinrichs, Sam Chamberlain

September 2004 **ACM Transactions on Database Systems (TODS)**, Volume 29 Issue 3

Full text available:  [pdf\(1.70 MB\)](#)

Additional Information: [full citation](#), [abstract](#), [references](#), [index terms](#)

This article addresses the problem of managing Moving Objects Databases (MODs) which capture the inherent imprecision of the information about the moving object's location at a given time. We deal systematically with the issues of constructing and representing the *trajectories* of moving objects and querying the MOD. We propose to model an uncertain trajectory as a three-dimensional (3D) cylindrical body and we introduce a set of novel but natural spatio-temporal *operators* which cap ...


**Keywords:** Moving Objects Databases



#### 11 Computational strategies for object recognition

Paul Suetens, Pascal Fua, Andrew J. Hanson

March 1992 **ACM Computing Surveys (CSUR)**, Volume 24 Issue 1

Full text available:  [pdf\(6.37 MB\)](#)

Additional Information: [full citation](#), [abstract](#), [references](#), [citations](#), [index terms](#), [review](#)

This article reviews the available methods for automated identification of objects in digital images. The techniques are classified into groups according to the nature of the computational strategy used. Four classes are proposed: (1) the simplest strategies, which work on data appropriate for feature vector classification, (2) methods that match models to symbolic data structures for situations involving reliable data and complex models, (3) approaches that fit models to the photometry and ...

**Keywords:** image understanding, model-based vision, object recognition




#### 12 Lightfield acquisition & display: DISCO: acquisition of translucent objects

Michael Goesele, Hendrik P. A. Lensch, Jochen Lang, Christian Fuchs, Hans-Peter Seidel

August 2004 **ACM Transactions on Graphics (TOG)**, Volume 23 Issue 3

Full text available:  [pdf\(526.75 KB\)](#)

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Additional Information: [full citation](#), [abstract](#), [references](#), [index terms](#)

Translucent objects are characterized by diffuse light scattering beneath the object's surface. Light enters and leaves an object at possibly distinct surface locations. This paper presents the first method to acquire this transport behavior for arbitrary inhomogeneous objects. Individual surface points are illuminated in our DISCO measurement facility and the object's impulse response is recorded with a high-dynamic range video camera. The acquired data is resampled into a hierarchical model of ...


**Keywords:** Acquisition, BSSRDF, Reflection Model, Subsurface Scattering, Translucency



#### 13 Combining edges and points for interactive high-quality rendering

Kavita Bala, Bruce Walter, Donald P. Greenberg

July 2003 **ACM Transactions on Graphics (TOG)**, Volume 22 Issue 3

Full text available:  [pdf\(4.52 MB\)](#)

Additional Information: [full citation](#), [abstract](#), [references](#), [index terms](#)

This paper presents a new interactive rendering and display technique for complex scenes with expensive shading, such as global illumination. Our approach combines sparsely sampled shading (points) and analytically computed discontinuities (edges) to interactively



generate high-quality images. The *edge-and-point* image is a new compact representation that combines edges and points such that fast, table-driven interpolation of pixel shading from nearby point samples is possible, while respo ...

**Keywords:** interactive software rendering, silhouette and shadow edges, sparse sampling and reconstruction

#### 14 Jump map-based interactive texture synthesis

Steve Zelinka, Michael Garland

October 2004 **ACM Transactions on Graphics (TOG)**, Volume 23 Issue 4

Full text available:  [pdf\(529.89 KB\)](#) Additional Information: [full citation](#), [abstract](#), [references](#), [index terms](#)


We present techniques for accelerated texture synthesis from example images. The key idea of our approach is to divide the task into two phases: analysis, and synthesis. During the analysis phase, which is performed once per sample texture, we generate a *jump map*. Using the jump map, the synthesis phase is capable of synthesizing texture similar to the analyzed example at interactive rates. We describe two such synthesis phase algorithms: one for creating images, and one for di ...

**Keywords:** Interactive texture synthesis, jump maps, texturing surfaces

#### 15 Image-driven simplification

Peter Lindstrom, Greg Turk

July 2000 **ACM Transactions on Graphics (TOG)**, Volume 19 Issue 3

Full text available:  [pdf\(1.98 MB\)](#) Additional Information: [full citation](#), [abstract](#), [references](#), [citations](#), [index terms](#)

We introduce the notion of image-driven simplification, a framework that uses images to decide which portions of a model to simplify. This is a departure from approaches that make polygonal simplification decisions based on geometry. As with many methods, we use the edge collapse operator to make incremental changes to a model. Unique to our approach, however, is the use at comparisons between images of the original model against those of a simplified model to determine the ...

**Keywords:** image metrics, level-of-detail, polygonal simplification, visual perception

#### 16 Computer Processing of Line-Drawing Images

Herbert Freeman

January 1974 **ACM Computing Surveys (CSUR)**, Volume 6 Issue 1

Full text available:  [pdf\(3.18 MB\)](#) Additional Information: [full citation](#), [references](#), [citations](#), [index terms](#)

#### 17 Pen computing: a technology overview and a vision

André Meyer

July 1995 **ACM SIGCHI Bulletin**, Volume 27 Issue 3


Full text available:  [pdf\(5.14 MB\)](#) Additional Information: [full citation](#), [abstract](#), [citations](#), [index terms](#)

This work gives an overview of a new technology that is attracting growing interest in public as well as in the computer industry itself. The visible difference from other technologies is in the use of a pen or pencil as the primary means of interaction between a user and a machine, picking up the familiar pen and paper interface metaphor. From this follows a set of consequences that will be analyzed and put into context with other emerging technologies and visions. Starting with a short historic ...

#### 18 Ray space factorization for from-region visibility

Tommer Leyvand, Olga Sorkine, Daniel Cohen-Or

July 2003 **ACM Transactions on Graphics (TOG)**, Volume 22 Issue 3

Full text available:  [pdf\(6.26 MB\)](#)

Additional Information: [full citation](#), [abstract](#), [references](#), [citations](#), [index terms](#)

From-region visibility culling is considered harder than from-point visibility culling, since it is inherently four-dimensional. We present a conservative occlusion culling method based on factorizing the 4D visibility problem into horizontal and vertical components. The visibility of the two components is solved asymmetrically: the horizontal component is based on a parameterization of the ray space, and the visibility of the vertical component is solved by incrementally merging umbrae. The tec ...


**Keywords:** PVS, dual space, hardware acceleration, line parameterization, occlusion culling, visibility

## 19 [Multiresolution green's function methods for interactive simulation of large-scale elastostatic objects](#)



Doug L. James, Dinesh K. Pai

January 2003 **ACM Transactions on Graphics (TOG)**, Volume 22 Issue 1

Full text available:  [pdf\(8.69 MB\)](#)

Additional Information: [full citation](#), [abstract](#), [references](#), [citations](#), [index terms](#)

We present a framework for low-latency interactive simulation of linear elastostatic models, and other systems arising from linear elliptic partial differential equations, which makes it feasible to interactively simulate large-scale physical models. The deformation of the models is described using precomputed Green's functions (GFs), and runtime boundary value problems (BVPs) are solved using existing Capacitance Matrix Algorithms (CMAs). Multiresolution techniques are introduced to control the ...

**Keywords:** Capacitance matrix, Green's function, deformation, elastostatic, fast summation, force feedback, interactive real-time applications, lifting scheme, real-time, updating, wavelets

## 20 [Draft Proposed: American National Standard—Graphical Kernel System](#)



Technical Committee X3H3 - Computer Graphics

February 1984 **ACM SIGGRAPH Computer Graphics**, Volume 18 Issue SI

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## 1 [Texture mapping 3D models of real-world scenes](#)



Frederick M. Weinhaus, Venkat Devarajan

December 1997 **ACM Computing Surveys (CSUR)**, Volume 29 Issue 4

Full text available: [pdf\(1.98 MB\)](#)

Additional Information: [full citation](#), [abstract](#), [references](#), [index terms](#), [review](#)

Texture mapping has become a popular tool in the computer graphics industry in the last few years because it is an easy way to achieve a high degree of realism in computer-generated imagery with very little effort. Over the last decade, texture-mapping techniques have advanced to the point where it is possible to generate real-time perspective simulations of real-world areas by texture mapping every object surface with texture from photographic images of these real-world areas. The technique ...

**Keywords:** anti-aliasing, height field, homogeneous coordinates, image perspective transformation, image warping, multiresolution data, perspective projection, polygons, ray tracing, real-time scene generation, rectification, registration, texture mapping, visual simulators, voxels

## 2 [Meshed atlases for real-time procedural solid texturing](#)



Nathan A. Carr, John C. Hart

April 2002 **ACM Transactions on Graphics (TOG)**, Volume 21 Issue 2

Full text available: [pdf\(5.93 MB\)](#)

Additional Information: [full citation](#), [abstract](#), [references](#), [citations](#), [index terms](#)

We describe an implementation of procedural solid texturing that uses the texture atlas, a one-to-one mapping from an object's surface into its texture space. The method uses the graphics hardware to rasterize the solid texture coordinates as colors directly into the atlas. A texturing procedure is applied per-pixel to the texture map, replacing each solid texture coordinate with its corresponding procedural solid texture result. The procedural solid texture is then mapped back onto the object's ...

**Keywords:** MIP-map, Mesh partitioning, procedural texturing, solid texturing, texture atlas, texture mapping

## 3 [Status report of the graphic standards planning committee](#)



Computer Graphics staff

August 1979 **ACM SIGGRAPH Computer Graphics**, Volume 13 Issue 3

Full text available: [pdf\(15.01 MB\)](#)

Additional Information: [full citation](#), [references](#), [citations](#)

- 4 Lightfield acquisition & display: DISCO: acquisition of translucent objects  
Michael Goesele, Hendrik P. A. Lensch, Jochen Lang, Christian Fuchs, Hans-Peter Seidel  
August 2004 **ACM Transactions on Graphics (TOG)**, Volume 23 Issue 3

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**Keywords:** Acquisition, BSSRDF, Reflection Model, Subsurface Scattering, Translucency

- 5 The Quadtree and Related Hierarchical Data Structures

Hanan Samet

June 1984 **ACM Computing Surveys (CSUR)**, Volume 16 Issue 2


Full text available:  [pdf\(4.87 MB\)](#)

Additional Information: [full citation](#), [references](#), [citations](#), [index terms](#)

- 6 Scanning physical interaction behavior of 3D objects

Dinesh K. Pai, Kees van den Doel, Doug L. James, Jochen Lang, John E. Lloyd, Joshua L. Richmond, Som H. Yau

August 2001 **Proceedings of the 28th annual conference on Computer graphics and interactive techniques**

Full text available:  [pdf\(1.52 MB\)](#)

Additional Information: [full citation](#), [abstract](#), [references](#), [citations](#), [index terms](#), [review](#)

We describe a system for constructing computer models of several aspects of physical interaction behavior, by scanning the response of real objects. The behaviors we can successfully scan and model include deformation response, contact textures for interaction with force-feedback, and contact sounds. The system we describe uses a highly automated robotic facility that can scan behavior models of whole objects. We provide a comprehensive view of the modeling process, including selection of mod ...

**Keywords:** behavioral animation, deformations, haptics, multimedia, physically based modeling, robotics, sound visualization

- 7 The digital Michelangelo project: 3D scanning of large statues

Marc Levoy, Kari Pulli, Brian Curless, Szymon Rusinkiewicz, David Koller, Lucas Pereira, Matt Ginzton, Sean Anderson, James Davis, Jeremy Ginsberg, Jonathan Shade, Duane Fulk

July 2000 **Proceedings of the 27th annual conference on Computer graphics and interactive techniques**

Full text available:  [pdf\(10.83 MB\)](#)


Additional Information: [full citation](#), [abstract](#), [references](#), [citations](#), [index terms](#)

We describe a hardware and software system for digitizing the shape and color of large fragile objects under non-laboratory conditions. Our system employs laser triangulation rangefinders, laser time-of-flight rangefinders, digital still cameras, and a suite of software for acquiring, aligning, merging, and viewing scanned data. As a demonstration of this system, we digitized 10 statues by Michelangelo, including the well-known figure of David, two building interiors, and all 1,163 extant f ...

**Keywords:** 3D scanning, cultural heritage, graphics systems, mesh generation, range images, rangefinding, reflectance and shading models, sensor fusion

- 8 Combining edges and points for interactive high-quality rendering

Kavita Bala, Bruce Walter, Donald P. Greenberg

Full text available:  [pdf\(4.52 MB\)](#)

Additional Information: [full citation](#), [abstract](#), [references](#), [index terms](#)


This paper presents a new interactive rendering and display technique for complex scenes with expensive shading, such as global illumination. Our approach combines sparsely sampled shading (points) and analytically computed discontinuities (edges) to interactively generate high-quality images. The *edge-and-point* image is a new compact representation that combines edges and points such that fast, table-driven interpolation of pixel shading from nearby point samples is possible, while respo ...

**Keywords:** interactive software rendering, silhouette and shadow edges, sparse sampling and reconstruction

## 9 Three-dimensional object recognition

Paul J. Besl, Ramesh C. Jain

March 1985 **ACM Computing Surveys (CSUR)**, Volume 17 Issue 1

Full text available:  [pdf\(7.76 MB\)](#)


Additional Information: [full citation](#), [abstract](#), [references](#), [citations](#), [index terms](#), [review](#)

A general-purpose computer vision system must be capable of recognizing three-dimensional (3-D) objects. This paper proposes a precise definition of the 3-D object recognition problem, discusses basic concepts associated with this problem, and reviews the relevant literature. Because range images (or depth maps) are often used as sensor input instead of intensity images, techniques for obtaining, processing, and characterizing range data are also surveyed.

## 10 Image-driven simplification

Peter Lindstrom, Greg Turk

July 2000 **ACM Transactions on Graphics (TOG)**, Volume 19 Issue 3

Full text available:  [pdf\(1.98 MB\)](#)

Additional Information: [full citation](#), [abstract](#), [references](#), [citations](#), [index terms](#)


We introduce the notion of image-driven simplification, a framework that uses images to decide which portions of a model to simplify. This is a departure from approaches that make polygonal simplification decisions based on geometry. As with many methods, we use the edge collapse operator to make incremental changes to a model. Unique to our approach, however, is the use at comparisons between images of the original model against those of a simplified model to determine the ...

**Keywords:** image metrics, level-of-detail, polygonal simplification, visual perception

## 11 Multiresolution green's function methods for interactive simulation of large-scale elastostatic objects

Doug L. James, Dinesh K. Pai

January 2003 **ACM Transactions on Graphics (TOG)**, Volume 22 Issue 1

Full text available:  [pdf\(8.69 MB\)](#)

Additional Information: [full citation](#), [abstract](#), [references](#), [citations](#), [index terms](#)

We present a framework for low-latency interactive simulation of linear elastostatic models, and other systems arising from linear elliptic partial differential equations, which makes it feasible to interactively simulate large-scale physical models. The deformation of the models is described using precomputed Green's functions (GFs), and runtime boundary value problems (BVPs) are solved using existing Capacitance Matrix Algorithms (CMAs). Multiresolution techniques are introduced to control the ...


**Keywords:** Capacitance matrix, Green's function, deformation, elastostatic, fast summation, force feedback, interactive real-time applications, lifting scheme, real-time, updating, wavelets



### Jump map-based interactive texture synthesis

Steve Zelinka, Michael Garland

October 2004 **ACM Transactions on Graphics (TOG)**, Volume 23 Issue 4

Full text available:  [pdf\(529.89 KB\)](#) Additional Information: [full citation](#), [abstract](#), [references](#), [index terms](#)

We present techniques for accelerated texture synthesis from example images. The key idea of our approach is to divide the task into two phases: analysis, and synthesis. During the analysis phase, which is performed once per sample texture, we generate a <i>jump map</i>. Using the jump map, the synthesis phase is capable of synthesizing texture similar to the analyzed example at interactive rates. We describe two such synthesis phase algorithms: one for creating images, and one for di ...

**Keywords:** Interactive texture synthesis, jump maps, texturing surfaces



### 13 Voronoi diagrams—a survey of a fundamental geometric data structure

Franz Aurenhammer

September 1991 **ACM Computing Surveys (CSUR)**, Volume 23 Issue 3

Full text available:  [pdf\(5.18 MB\)](#) Additional Information: [full citation](#), [references](#), [citations](#), [index terms](#)


**Keywords:** cell complex, clustering, combinatorial complexity, convex hull, crystal structure, divide-and-conquer, geometric data structure, growth model, higher dimensional embedding, hyperplane arrangement, k-set, motion planning, neighbor searching, object modeling, plane-sweep, proximity, randomized insertion, spanning tree, triangulation



### 14 Real-time rendering: Interactive rendering of suggestive contours with temporal coherence

Doug DeCarlo, Adam Finkelstein, Szymon Rusinkiewicz

June 2004 **Proceedings of the 3rd international symposium on Non-photorealistic animation and rendering**

Full text available:  [pdf\(382.84 KB\)](#) Additional Information: [full citation](#), [abstract](#), [references](#)

Line drawings can convey shape using remarkably minimal visual content. Suggestive contours, which are lines drawn at certain types of view-dependent surface inflections, were proposed recently as a way of improving the effectiveness of computer-generated line drawings. This paper extends previous work on static suggestive contours to dynamic and real-time settings. We analyze movement of suggestive contours with respect to changes in viewpoint, and offer techniques for improving the quality of ...


**Keywords:** contours, differential geometry, graphics hardware, line drawings, non-photorealistic rendering, silhouettes



### 15 Real-time rendering: Hardware-determined feature edges

Morgan McGuire, John F. Hughes

June 2004 **Proceedings of the 3rd international symposium on Non-photorealistic animation and rendering**

Full text available:  [pdf\(543.94 KB\)](#) Additional Information: [full citation](#), [abstract](#), [references](#)

Algorithms that detect silhouettes, creases, and other edge based features often perform per-edge and per-face mesh computations using global adjacency information. These are unsuitable for hardware-pipeline implementation, where programmability is at the vertex and pixel level and only local information is available. Card and Mitchell and Gooch have suggested that adjacency information could be packed into a vertex data structure; we describe the details of converting global/per-edge computatio ...

**Keywords:** GPU, NPR, contour, shadow volume, silhouette



## Post-rendering 3D warping

William R. Mark, Leonard McMillan, Gary Bishop

April 1997 **Proceedings of the 1997 symposium on Interactive 3D graphics**

Full text available:  [pdf\(1.41 MB\)](#) Additional Information: [full citation](#), [references](#), [citations](#), [index terms](#)



## 17 Simplification of surface annotations

Frank Suits, James T. Klosowski, William P. Horn, Gérard Lecina

October 2000 **Proceedings of the conference on Visualization '00**

Full text available:  [pdf\(2.85 MB\)](#) Additional Information: [full citation](#), [index terms](#)




**Keywords:** CAD/CAM, FEM, cartography, mesh, polygonal path, simplification

## 18 Relief texture mapping

Manuel M. Oliveira, Gary Bishop, David McAllister

July 2000 **Proceedings of the 27th annual conference on Computer graphics and interactive techniques**

Full text available:  [pdf\(1.58 MB\)](#) Additional Information: [full citation](#), [abstract](#), [references](#), [citations](#), [index terms](#)

We present an extension to texture mapping that supports the representation of 3-D surface details and view motion parallax. The results are correct for viewpoints that are static or moving, far away or nearby. Our approach is very simple: a relief texture (texture extended with an orthogonal displacement per texel) is mapped onto a polygon using a two-step process: First, it is converted into an ordinary texture using a surprisingly simple 1-D forward transform. The result ...


**Keywords:** image-based rendering, range images, rendering, texture mapping



## 19 Surface light fields for 3D photography

Daniel N. Wood, Daniel I. Azuma, Ken Aldinger, Brian Curless, Tom Duchamp, David H. Salesin, Werner Stuetzle

July 2000 **Proceedings of the 27th annual conference on Computer graphics and interactive techniques**

Full text available:  [pdf\(4.61 MB\)](#) Additional Information: [full citation](#), [abstract](#), [references](#), [citations](#), [index terms](#)

A surface light field is a function that assigns a color to each ray originating on a surface. Surface light fields are well suited to constructing virtual images of shiny objects under complex lighting conditions. This paper presents a framework for construction, compression, interactive rendering, and rudimentary editing of surface light fields of real objects. Generalization of vector quantization and principal component analysis are used to construct a compressed repres ...



**Keywords:** 3D photography, function quantization, image-based rendering, light field, lumigraph, principal function analysis, surface light fields, view-dependent level-of-detail, wavelets



## 20 Fast perspective volume rendering with splatting by utilizing a ray-driven approach

Klaus Mueller, Roni Yagel

October 1996 **Proceedings of the 7th conference on Visualization '96**

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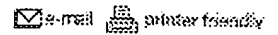
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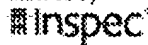
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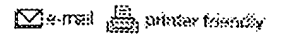
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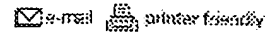
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